

HAWAII ADMINISTRATIVE RULES  
TITLE 13  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
SUBTITLE 7  
WATER AND LAND DEVELOPMENT  
CHAPTER 190  
DAMS AND RESERVOIRS

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SUBCHAPTER 1

GENERAL PROVISIONS

§13-190-1 Purpose and applicability. (a) The purpose of this chapter is to establish rules governing the design, construction, operation, maintenance, enlargement, alteration, repair, and removal of dams, reservoirs, and appurtenant works in the State.

(b) This chapter shall not apply to the design and construction of dams, reservoirs, and appurtenant works which already existed on June 6, 1987, but shall apply to their operation, maintenance, enlargement, alteration, repair, and removal.

(c) This chapter does not apply to any artificial barrier which is less than six feet in height regardless of storage capacity or which has a storage capacity at maximum water storage elevation less than fifteen acre-feet regardless of height.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-2, 179D-5)

§13-190-2 Definitions. As used in this chapter unless otherwise provided:

Alteration means a change to an existing dam or reservoir from the originally approved construction plans and specifications or current condition.

Appurtenant works means the ancillary features of a dam, such as the spillway, reservoir and its rim, powerhouse outlet, tunnel, pipeline, and penstock.

Board means the board of land and natural resources.

Dam means any artificial barrier, including appurtenant works, which impounds or diverts water, and which:

- (1) Is twenty-five feet or more in height from the natural bed of the stream or watercourse measured at the downstream toe of the

barrier, or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse, to a maximum water storage elevation; or

- (2) Has an impounding capacity at maximum water storage elevation of fifty acre-feet or more. This chapter does not apply to any artificial barrier which is less than six feet in height regardless of storage capacity or which has a storage capacity at maximum water storage elevation less than fifteen acre-feet regardless of height.

Day means calendar days including Saturdays, Sundays and holidays.

Department means the department of land and natural resources.

Design water level means the maximum water elevation, including the flood surcharge, that a dam is designed to withstand.

Engineer means a registered professional engineer, licensed by the State of Hawaii.

Enlargement means any change in or addition to an existing dam or reservoir which raises or may raise the maximum water storage elevation of the reservoir.

High hazard means a dam's failure would most probably result in the loss of lives and extensive property damage.

Low hazard means a dam's failure would result in only minimal property damage.

Maximum water storage elevation means the maximum water surface elevation of the reservoir at the crest of the spillway or, if no spillway exists, at the crest of the dam.

Moderate hazard means a dam's failure would possibly result in the loss of life and appreciable property damage.

Owner means any person who owns, controls, operates, maintains, manages, or proposes to construct a dam or reservoir.

Person means any individual, firm, association, organization, partnership, estate, trust, corporation, company, or any governmental unit.

Repair means construction to an existing dam that does not significantly change the reservoir's storage capacity. Repair shall not be deemed to apply to routine maintenance not affecting the safety of the structure.

Reservoir means any basin which contains or will contain water impounded by a dam.

Spillway crest means the lowest level at which water can flow over or through the spillway.

Storage capacity means the total reservoir storage in acre-feet at the maximum water storage elevation. Eff. APR 19 1990 (Auth: HRS 179D-6) (Imp: HRS §179D-3)

§13-190-3 Exempt structures. Structures exempt from these rules include:

- (1) Highways and roadfills (except those designed or modified with the purpose of impounding water for uses other than flood detention);
- (2) Dams smaller than those defined in section 13-190-2.
- (3) Dams for which no loss of human life is expected and damage will occur only to the owner's property in the event of failure of the dam;
- (4) Refuse embankments (e.g., solid waste disposal facilities); and
- (5) Structures that store water only below the lowest point of the natural ground, unless an outlet works is constructed to develop water.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-4 Violations; penalties. Any person violating any provision of this chapter shall be liable for a civil penalty not to exceed \$500 for each day during which said violation continues. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-8)

§13-190-5 Administrative and judicial review. Any person aggrieved or adversely affected by an order or action of the board is entitled to administrative and judicial review in accordance with chapter 91, HRS. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-7)

## SUBCHAPTER 2

CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION,

## OR REMOVAL OF DAMS AND RESERVOIRS

§13-190-20 Construction or enlargement of dam or reservoir. (a) No person shall construct any dam or reservoir or enlarge any dam or reservoir until an application to undertake the work has been filed and written approval of the construction plans and specifications is obtained from the board.

(b) A separate application shall be filed with the board for each reservoir and dam.

(c) Each application shall be made on forms furnished by the department and shall include the following:

- (1) Name and address of the applicant;
- (2) Name and address of the owner or owners of the land upon which the works are to be constructed or enlarged, and a legal description of the land;
- (3) Description of the location, type, size, and height of the proposed dam and reservoir and appurtenant works;
- (4) Storage capacity and reservoir surface areas for maximum water storage elevation and design water level;
- (5) Plans for any permanent instrument installations in the dam;
- (6) Area of the drainage basin, rainfall and streamflow records, and flood-flow records and estimates (as accurately as may be readily obtained);
- (7) Relevant construction drawings, plans, and specifications;
- (8) Proposed times of commencement and completion of the proposed activity;
- (9) Name and address of the person who prepared the plans and specifications;
- (10) Name and address of the person who will construct or enlarge the proposed dam or reservoir and appurtenant works; and
- (11) Other information as may be necessary for the board to determine the merits of the proposed construction or enlargement of the dam or reservoir and appurtenant works, including any hazards to the public health, safety, or welfare, and the desirability of issuing a permit.

(d) A non-refundable filing fee of \$25 shall accompany each application; provided that no fee shall be required of any federal, state, or county agency. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-21 Repair or alteration of dam, reservoir, or appurtenant works; removal of dam or reservoir. (a) Before commencing the repair or alteration of an existing dam, reservoir, or appurtenant works, or the alteration or removal of a dam or reservoir so that it no longer constitutes a dam or reservoir as defined in this chapter, the owner shall file an application for the work and secure the written approval of the board; provided that owners proposing routine maintenance not affecting the safety of the structure are exempted from this requirement.

(b) Each application shall include such pertinent information and data concerning the dam, reservoir, or appurtenant works as may be required by the board, as follows:

- (1) Proposed times of commencement and completion of remedial construction;
- (2) Names and addresses of applicant and contractor;
- (3) Changes which the work covered in the application is proposed to effect, with appropriate references to the existing dam or reservoir;
- (4) Relevant construction plans and specifications; and
- (5) Other information appropriate for a thorough consideration of the safety of such work, as may be required by the board.

(c) A non-refundable application fee of \$25 shall accompany each application; provided that no fee shall be required of any federal, state, or county agency.

(d) The requirements of this section may be waived where appropriate. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-22 Supervision of plans preparation and construction inspection. An engineer shall be in charge of the preparation of all plans and specifications for the initial construction, enlargement, alteration, repair, or removal of dams and

reservoirs and of the inspection of the construction. The engineer may be assisted by other specialists as required. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-23 Approval of plans and specifications.

(a) The board shall act upon an application and shall take into consideration the:

- (1) Cost and magnitude of the project;
- (2) Engineering and physical features involved;
- (3) Existing conditions; and
- (4) Public interest affected.

(b) If an application is incomplete, it shall be returned to the applicant. The application shall be corrected and returned to the board within 60 days or such further time as may be given by the board in order to retain its validity. If the application is not returned within the required time limit, it shall be deemed automatically rejected.

(c) If the construction, alteration, or repair of a dam or reservoir is not commenced within five years of the date of approval of the application, the board's approval shall be deemed automatically void.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-24 Revocation of approval.

(a) An approval of the plans and specifications for any construction, enlargement, alteration, repair, or removal of any dam or reservoir or its appurtenant works may be revoked in whole or in part for any:

- (1) Material false statement in the application or in any report or statement of fact required pursuant to this chapter;
- (2) Violation of this chapter; or
- (3) Violation of the approved plans and specifications.

(b) In any proceeding for revocation, the board shall give prior written notice to the affected owner of the facts or conditions which warrant the action and provide the owner an opportunity for a hearing.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

## SUBCHAPTER 3

### CONSTRUCTION, INSPECTION, AND COMPLETION

#### §13-190-30 Inspection during progress of work.

(a) During the construction, enlargement, repair, alteration, or removal of any dam or reservoir, the owner shall:

- (1) Perform, at its own expense, work or tests necessary to insure proper compliance with the approved plans and specifications;
- (2) Provide adequate supervision by an engineer during construction; and
- (3) Provide any information requested by the board to determine that conformity with the approved plans and specifications is being achieved.

The department may make, through its own engineers or by consulting engineers of its selection, periodic inspections at State expense for the purpose of ascertaining compliance with the approved plans and specifications.

(b) After any tests, inspections, or investigations, or at any time as the work progresses, or at any time prior to completion of the project, the department may order the owner to revise, modify, or change its plans and specifications for safety reasons; provided that the owner may request a hearing before the board to review the order.

(c) If conditions are revealed which will not permit the construction of a safe dam or reservoir, the board's approval for construction shall be revoked.

(d) If at any time during the construction, enlargement, repair, or alteration of any dam or reservoir the department finds that the work is not being done in accordance with approved plans and specifications, it shall give a written notice thereof to the owner. The written notice shall state the specific violations and shall order the immediate compliance with the approved plans and specifications. The department may order that no further work be done until such compliance has been effected and confirmed by the department or its designated representative.

(e) If the owner fails to comply with the approved plans and specifications the board shall take action to revoke its approval and compel the owner to



remove the incomplete structure sufficiently to eliminate any safety hazard to life or property.  
Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-31 Completion of new or enlarged dam or reservoir. (a) Upon completion of a new or enlarged dam or reservoir, the owner shall provide written notification of completion to the department signed by the responsible engineer supervising construction for the owner, certifying that the project was constructed in conformance with the approved plans and specifications, accompanied by supplementary drawings or descriptive matter showing or describing the dam or reservoir as actually constructed, which shall include a record of the following:

- (1) All geological boreholes and grout holes and grouting;
- (2) Permanent location points, benchmarks, and instruments embedded in the structure;
- (3) Tests of concrete or other material used in the construction of the dam and reservoir;
- (4) Seepage flows and embedded instrument readings after a year of operation; and
- (5) Construction problems encountered and solutions implemented.

(b) Supplementary drawings and descriptive matter for the enlargement of a dam or reservoir shall only apply to any new construction not already shown in the original plans on file with the department.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-32 Completion of repair or alteration of dam or reservoir. (a) Upon completion of the repair or alteration of any dam or reservoir, the owner shall provide a notice of completion to the department and thereafter shall file with the department a completion report, signed by the responsible engineer supervising the work for the owner, attesting that the repairs or alterations were completed in accordance with the approved plans and specifications, accompanied by supplementary drawings or descriptive matter showing or describing the dam or reservoir as actually repaired or altered, together with all applicable maps, data,

records, and information required by the department.  
Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-33 Completion of removal of dam or reservoir. (a) Upon completion of the removal of a dam or reservoir, the owner shall file with the department a report regarding the manner in which the work was performed and the conditions existing after the removal of the dam. No filing shall be required for the routine drawdown of reservoirs for normal operations and maintenance not affecting the safety of the structure.

(b) The report shall show that a sufficient portion of the dam has been removed to permit the safe flow of water down the watercourse across which the dam was situated and that adequate provisions have been made by the owner to prevent any damage downstream that may result from the remaining portion of the dam due to subsequent flooding. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-34 Complaints as to unsafe conditions. (a) Upon receipt of a written complaint alleging that the person or property of the complainant is endangered by the construction, enlargement, repairs, alterations, maintenance, or operation of any dam or reservoir, the department shall contact the owner and conduct an inspection unless the data, records, and inspection reports on file with the department are sufficiently adequate to determine whether the complaint is valid.

(b) In determining whether an existing dam or reservoir or proposed dam or reservoir constitutes or would constitute a danger to life or property, the department shall evaluate the possibility that the dam or reservoir might be endangered by overtopping, seepage, settlement, erosion, cracking, earth movement, earthquakes, and failure of bulkheads, flashboard, gates, and conduits which exist or which might occur in any area in the vicinity of the dam or reservoir.

(c) If an unsafe condition exists, the department shall notify the owner to take action necessary to render the condition safe, including breaching or removal of any dam found beyond repair.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

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#### SUBCHAPTER 4

#### MAINTENANCE, OPERATION, AND EMERGENCY WORK

§13-190-40 Maintanance and operation. (a) Owners shall provide for the adequate and timely maintenance, operation, and inspection of their dams and reservoirs and shall be responsible for any engineering and geologic investigations which may be required to insure public safety. Owners or their agents shall keep available and in good order records of original construction and any modifications, and shall report to the department their maintenance, operation and engineering activities, including piezometric data collection and geologic investigations.

(b) The owner of a dam or reservoir or his agent shall fully and promptly advise the department of any sudden or unprecedented flood or unusual or alarming circumstance or occurrence existing or anticipated which may adversely affect the dam or reservoir.

(c) Upon reasonable notice to the owners of dams and reservoirs, the department, from time to time, but not less than once every five years, either with its own engineers or by consulting engineers of its selection, shall make inspections of dams and reservoirs at State expense for the purpose of determining their safety, but shall require owners to perform at their expense work reasonably required to disclose information sufficient to enable the department to determine conditions of dams and reservoirs in regard to their safety, including the installation, maintenance, and monitoring of necessary instrumentation. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-41 Emergency work. (a) In case of an emergency where the department declares that repairs, breaching of the dam, or other actions are immediately necessary to safeguard life and property, the work shall be initiated by the owner, or by the department through its authorized agent at the owner's expense if the owner fails to do so. The department shall be notified at once of any emergency repairs or other work instituted by the owner.

(b) Where appropriate, the repairs, breaching, or other emergency work shall conform to an order issued by the department.

(c) The following emergency actions not impairing the safety of the dam may be taken by the owner without prior notification or approval of the department:

- (1) Stockpiling materials such as riprap, earthfill, sand, sandbags, and plastic sheeting;
- (2) Lowering the reservoir level by making releases through the outlet or a gated spillway, by pumping or by siphoning; however, when large releases are to be made, the department shall be notified. Lowering the water level by excavating the spillway or embankment is prohibited unless failure is imminent. In this situation, the department shall be notified as soon as reasonably possible of any emergency condition that exists and any emergency action taken;
- (3) Armoring eroded areas by placing sandbags, riprap, plastic sheeting, or other available material;
- (4) Plugging leakage entrances on the upstream slope;
- (5) Increasing freeboard by placing sandbags or temporary earthfill on the dam;
- (6) Diverting floodwaters to prevent them from entering the reservoir basin;
- (7) Constructing training berms to control floodwaters;
- (8) Placing sandbag ring dikes around boils at the downstream toe to provide back pressure; and
- (9) Removing obstructions from outlet or spillway flow areas. Eff. APR 19 1990 (Auth: HRS §179D-6) (IMP: HRS §179D-6)

§13-190-42 Emergency preparedness plan. (a) Owners of high hazard dams shall prepare, maintain, and implement an emergency preparedness plan for each dam or reservoir for immediate defensive action to alert and evacuate the affected population and to mitigate damages to property. The emergency preparedness plan shall contain as a minimum the following:

- (1) The identification of equipment, labor, and material available for implementation of the plan;
- (2) A notification procedure for informing the department and the civil defense office of the affected county;
- (3) A dam failure inundation map.
- (4) A procedure for warning the affected population if failure of the dam is imminent.

(b) The owner shall submit a copy of the emergency preparedness plan to the affected county civil defense office and other emergency coordinators involved in the plan for review.

(c) The owner shall annually review and update the emergency preparedness plan as necessary.

Eff. APR 19 1990 (Auth: HRS §179D-6) (IMP: HRS §179D-6)

#### DEPARTMENT OF LAND AND NATURAL RESOURCES

Chapter 13-190, Hawaii Administrative Rules, on the Summary Page dated October 27, 1989 was adopted on October 27, 1989, following public hearings held on Oahu on April 24, 1989; on Hawaii on April 25, 1989; on Maui on April 26, 1989; and on Kauai on April 27, 1989; after public notice was given in the Honolulu Star Bulletin, Hawaii Tribune Herald, Maui News and the Garden Island on March 28, 1989.

The adoption of chapter 13-190 shall take effect

ten days after filing with the Office of the Lieutenant Governor.

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William W. Paty  
Chairperson and Member  
Board of Land and Natural Resources

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Member  
Board of Land and Natural Resources

APPROVED:

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John Waihee  
Governor  
State of Hawaii

Dated: \_\_\_\_\_

APPROVED AS TO FORM:

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Deputy Attorney General

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Filed